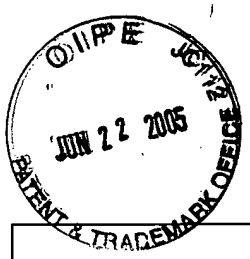

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Gina N. Shishima

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Bell et al.

Serial No.: 08/455,683

Filed: May 31, 1995

For: METHOD OF IDENTIFYING AGONISTS AND ANTAGONISTS

Group Art Unit: 1647

Examiner: Landsman, Robert S.

Atty. Dkt. No.: ARCD:177

REPLY BRIEF

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REPLY BRIEF

Board of Patent Appeals and Interferences
U. S. Patent and Trademark Office
Washington, D.C. 20231

This Reply Brief is filed in response to the Examiner's Answer mailed on April 18, 2005, regarding the above-captioned application. It is believed that no fee is due; however, should any other fees under 37 C.F.R §§ 1.16 to 1.21 be deemed necessary for any reason relating to the enclosed materials, the Commissioner is hereby authorized to deduct said fees from Fulbright & Jaworski L.L.P. Deposit Account No. 50-1212/ARCD:117.

Appellants also include a Request for Oral Argument, along with the requisite fee.

I. ARGUMENT

Appellants rely on the arguments set forth in the Appeal Brief and add the following comments with respect to the Examiner's Answer ("Answer").

A. The Contention That the Term "Opioid Receptor Polypeptide" Refers Only to a Full-Length Receptor

For the first time, the Examiner now argues that the term "opioid receptor polypeptide" in the claims refers only to the full-length polypeptide. He states, "When considering the phrase 'opioid receptor polypeptide' the artisan would envision a full-length receptor, not a partial

sequence." Answer at page 5. The Examiner then concludes that "no species has been described." *Id.* Appellants respectfully traverse this point.

There is absolutely no evidence provided or cited by the Examiner for this contention. If the Examiner is making statements about "what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding." MPEP § 2144.03 (citing 37 CFR § 1.104 (d)(2)). This has not been done.

Furthermore, as argued previously in the context of enablement, the specification makes clear that it provides a description and teaching of a polypeptides that function as an "opioid receptor polypeptide." First, Applicants contend that one of skill in the art would appreciate that SEQ ID NO:11 encodes a functional polypeptide by itself or could be used as a portion of a chimeric polypeptide. As shown in FIGS. 3, 4A and 4B, the human kappa opioid receptor polypeptide sequence disclosed in the specification has significant homology with the mouse amino acid sequence spanning from amino acid 87 to amino acid 380. Given that 292 residues of the human sequence are similar or identical to the corresponding mouse sequence, one of skill in the art would be able to practice the claimed invention based on the disclosure, which extensively discusses the mouse kappa opioid receptor polypeptide and chimeric molecules encoding portions of the mouse kappa opioid receptor.

Second, the specification points out the degree of identity between the mouse kappa opioid receptor polypeptide sequence and the human kappa opioid receptor polypeptide sequence, which provides further basis that in disclosing SEQ ID NO:11, Appellants have described a polypeptide that qualifies as an "opioid receptor polypeptide." While the human sequence lacks the first 87 amino acids of the protein, it has extensive *identity* with the mouse kappa opioid receptor. As shown in FIG. 4A, of the 290 amino acids identified from the human sequence that line up with the mouse sequence, 273 of the residues are identical to the

corresponding residue in the mouse sequence, and all of the remaining residues except for one (amino acid 358) would be recognized by one of skill in the art to be similar to the cognate mouse residue.

A variety of experiments were done using a nucleic acid sequence encoding a mouse kappa opioid receptor and these are disclosed in the specification. For example, binding studies were done (Specification at p. 124) to confirm that the clone obtained from mice was indeed the kappa opioid receptor (Specification at p. 125). Furthermore, the binding potencies of known opioid ligands were evaluated using the mouse kappa opioid receptor. (Specification at p. 126; p. 142-143). Experiments were also done using chimeric receptors. Some of these constructs contained a kappa opioid receptor polypeptide sequence missing the first 78 residues, and these constructs exhibited κ-selective agonist binding; these constructs lacking the N-terminus of the protein behaved like the full-length clone. With respect to the kappa portion of the construct, it is only nine amino acids longer than SEQ ID NO:12, the human kappa opioid receptor sequence. Moreover, SEQ ID NO:12 contains a second extracellular loop that is identical to the second extracellular loop described in the Specification as being involved in agonist binding. Specification at least at page 96, line 7; pages 165-170. The human sequence is tantamount to the sequence of the truncated constructs, and a person of ordinary skill in the art would appreciate this. Considering the extensive identity between the mouse and human kappa opioid receptor polypeptide sequences and the extensive characterization of the mouse kappa opioid receptor polypeptide, including the use of partial kappa opioid receptor sequences, one of ordinary skill in the art would understand that the specification describes an "opioid receptor polypeptide" as set forth in the claims.

Moreover, the specification makes it clear that the claims are not intended to be construed as limited only to a full-length opioid receptor. In the application, for example, it states:

> Truncated receptors will have great utility in screening assays. Since it is possible to truncate a receptor so that one or more of the ligand binding sites is missing. For example, the **opioid receptor** can be a kappa or a delta opioid receptor polypeptide.

Page 18. This paragraph makes it clear that the truncated "opioid receptor" can be a "kappa or a delta opioid receptor polypeptide"; contrary to the Examiner's assertion, it is clear that the "opioid receptor polypeptide" need not be full-length because it can be truncated.

Consequently, the argument that no species has been described because the claims require a full-length polypeptide is without merit.

B. Examiner's Position That the Full-Length Sequence Is Required

Ultimately, the entire basis for the Examiner's position is that a full-length sequence must be described by the specification because the present claims cover the use of a full-length sequence.[1]

The Examiner states, "While the claims may recite a specific structure, they do not recite a specific structure of a full-length kappa opioid receptor."

The Federal Circuit has stated:

> the written description requirement can be met by 'show[ing] that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics . . . i.e., complete or **partial structure**, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of characteristics.'

Enzo Biochem., Inc. v. Gen-Probe Inc., 296 F.3d 1316, 1324, 63 U.S.P.Q.2d 1609, 1613 (Fed. Cir. 2002) (original emphasis omitted, other emphasis added, alterations in original).

This much the specification provides. As discussed earlier, the claims are methods claims involving a receptor opioid polypeptide encoded by at least a certain number of contiguous bases of SEQ ID NO:11. Appellants have disclosed the sequence of SEQ ID NO:11, which is 1000

[1] For this reason, the claims all stand or fall together. If the Board were to identify a different basis for rejecting the claims as not adequately described, Appellants contend the claims should not stand or fall together because different numbers of species are described, depending on the number of contiguous bases recited in the claims. The higher the

bases in length and encodes 245 amino acids. As a result, Appellants have described hundreds and thousands of polypeptides that can be employed in these methods (and the Examiner admits this much in the Final Office), which constitute a substantial portion of any genus that might be alleged as covered by the claimed method. Except for the single full-length sequence, the Examiner has not explained how the structural requirements set forth in the claims is insufficient to describe a substantial portion of the genus he asserts he is covered by the claims. Based on the number of disclosed species, the specification necessarily satisfies the written description requirement because it reasonably conveys to one of skill in the art that they had possession of the claimed subject matter. *In re Daniels*, 144 F.3d 1452, 1456, 46 USPQ2d 1788, 1790.

Moreover, as argued earlier, there is no legal precedent that a description of **one** specific species—the full-length polypeptide sequence—covered by the claims is required in order to satisfy the written description requirement. In fact, the law states that an adequate written description does not require the complete structure of every species within a chemical genus. *See Utter v. Hiraga*, 845 F.2d 993, 998, 6 U.S.P.Q.2d 1709, 1714 (Fed. Cir. 1988) ("A specification may, within the meaning of 35 U.S.C. § 112, ¶ 1, contain a written description of a broadly claimed invention without describing all species that claim encompasses.").

The Federal Circuit in *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1562, 19 U.S.P.Q.2d 1111, 1117 (Fed. Cir. 1991), cited a Supreme Court opinion that the second requirement of paragraph 112 was:

> "to put the public in possession of what the part claims as his own invention, so as to ascertain if he claims anything that is in common use, or is already known, and to guard against prejudice or injury from the use of an invention which the party may otherwise innocently suppose not to be patented. It is, therefore, for the purpose of warning an innocent purchaser, or other person using . . . [the invention], of his infringement of the patent; and at the same time, of taking from the inventor the means of practicing upon the credulity or the fears of other

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number of contiguous bases recited in the claims, the greater the number of representative species (from a percentage basis) are described with respect to the full scope of the claim.

> persons, by pretending that his invention is more than what it really is, or different from its ostensible objects, that the patentee is required to distinguish his invention in his specification."

Evans v. Eaton, 20 U.S. (7 Wheat.) 356 (1822). Appellants' specification makes clear what the invention is so as to put the public on notice. There can be no dispute that they have described what they now claim. The specification and originally filed claims provide literal support for the presently rejected claims and, as discussed above, Appellants set forth structural and chemical limitations in the claims. This distinguishes the present situation from the case of *Regents of the Univ. of California v. Eli Lilly & Co.*, 119 F.3d 1559, 43 U.S.P.Q.2d 1398 (Fed. Cir. 1997). In *Eli Lilly*, the patentee claimed a human insulin cDNA but no sequence information was provided. Instead, only a way to obtain the sequence was disclosed. In contrast, Applicants have provided the requisite chemical structures set forth in the claimed methods.

Furthermore, the Guidelines for the Examination of Patent Applications Under 35 U.S.C. 112, ¶ 1 "Written Description" Requirement states, "The description need only describe in detail that which is ***new or not conventional***." Page 1106 (emphasis added). The novelty of the invention lies in the sequences of SEQ ID NO:11 and SEQ ID NO:12. This is precisely what the claims are directed to—the novel portion of the invention—and this is what has been described in the application. Therefore, the claims are sufficiently in compliance with the legal requirements for written description.

C. Enablement Is Not an Issue in This Case

There are statements in the rejection that sound like the issue involves enablement, instead of written description. The Examiner has stated, "One of ordinary skill in the art would have serious reason, respectfully, to question any assertion that another artisan could be able to predict the exact structure of a protein given only a portion of its sequence, regardless of homology to other known species." Answer at page 5.

To that end, Appellants assert that the claims have not been rejected as lacking enablement. As previously argued, the Examiner admitted that "even in the absence of the full-length receptor, the artisan would know how to make and use the present invention." Final Office Action at page 3. Moreover, the standard for enablement is not whether the skilled artisan can predict the exact structure of a protein involved in method. If enablement were an issue, it would involve evaluating whether undue experimentation were required to practice the claimed invention. *In re Wright*, 999 F.2d 1557, 1561, 27 U.S.P.Q.2d 1510, 1513 (Fed. Cir. 1993). Accordingly, the Examiner's comment does not raise an appropriate enablement issue.

II. CONCLUSION

Appellants have provided arguments that overcome the pending rejections. Appellants respectfully submit that the Office Action's conclusions that the claims should be rejected are unwarranted. It is therefore requested that the Board overturn the Action's rejections.

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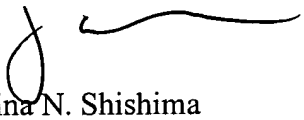
Respectfully Submitted,



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Date: June 20, 2005